WHAT IS CLAIMED IS:

1. An electron emission element comprising a cold cathode having a crystalline thin film consisting of an electron emissive material formed by means of a cold cathode forming process comprising a step for providing a target material and a substrate in a reaction chamber, a step for controlling the pressure (P) of an ambient gas introduced into the reaction chamber and the distance (D) between the substrate and the target material so that the size of a high temperature high pressure area formed near the target material by irradiating a beam light onto the target material is optimal, and a step for exciting and ejecting the material contained in the target material by irradiating the beam light onto the target material with introducing the ambient gas into the reaction chamber at the pressure to deposit the material on the substrate.

2. An electron emission element having an electron emission part formed on a substrate with interposition of an interference layer consisting of a conductive film or resistive film comprising a crystalline thin film of an electron emissive material formed by means of a cold cathode forming process comprising a step for providing a target material and a substrate in a reaction chamber, a step for

controlling the pressure (P) of an ambient gas introduced into the reaction chamber and the distance (D) between the substrate and the target material so that the size of a high temperature high pressure area formed near the target material by irradiating a beam light onto the target material is optimal, and a step for exciting and ejecting the material contained in the target material by irradiating the beam light onto the target material with introducing the ambient gas into the reaction chamber at the pressure to deposit the material on the substrate.

3. The electron emission element as claimed in claim 1, wherein the crystalline thin film that constitutes the cold cathode is any one compound of LaB_6, TiC, SiC, and SnC.

4. The electron emission element as claimed in claim 2, wherein the crystalline thin film that constitutes the cold cathode is any one compound of LaB_6, TiC, SiC, and SnC.

5. The electron emission element as claimed in claim 1, wherein the crystalline thin film that constitutes the cold cathode is any typical nitride of TiN, BN, SrN, ZrN, and HfN.

6. The electron emission element as claimed in claim 2, wherein the crystalline thin film that constitutes the cold cathode is any typical nitride of TiN, BN, SrN, ZrN, and HfN.

7. A CRT provided with an electron emission element as the electron source having a cold cathode formed of a crystalline thin film of electron emissive material formed by means of a cold cathode forming process comprising a step for providing a target material and a substrate in a reaction chamber, a step for controlling the pressure (P) of an ambient gas introduced into the reaction chamber and the distance (D) between the substrate and the target material so that the size of a high temperature high pressure area formed near the target material by irradiating a beam light onto the target material is optimal, and a step for exciting and ejecting the material contained in the target material by irradiating the beam light onto the target material with introducing the ambient gas into the reaction chamber at the pressure to deposit the material on the substrate.

8. A CRT provided with an electron emission element as the electron source comprising an electron emission element having an electron emission part formed on a substrate with interposition of an interference layer consisting of a conductive film or resistive film comprising a crystalline thin film of an electron emissive material formed by means of a cold cathode forming process comprising a step for providing a target material and a substrate in a reaction chamber, a step for controlling the pressure (P) of an ambient gas

introduced into the reaction chamber and the distance (D) between the substrate and the target material so that the size of a high temperature high pressure area formed near the target material by irradiating a beam light onto the target material is optimal, and a step for exciting and ejecting the material contained in the target material by irradiating the beam light onto the target material with introducing the ambient gas into the reaction chamber at the pressure to deposit the material on the substrate.

9. A flat display provided with an electron emission element as the electron source comprising an electron emission element comprising a cold cathode having a crystalline thin film consisting of an electron emissive material formed by means of a cold cathode forming process comprising a step for providing a target material and a substrate in a reaction chamber, a step for controlling the pressure (P) of an ambient gas introduced into the reaction chamber and the distance (D) between the substrate and the target material so that the size of a high temperature high pressure area formed near the target material by irradiating a beam light onto the target material is optimal, and a step for exciting and ejecting the material contained in the target material by irradiating the beam light onto the target material with introducing the

ambient gas into the reaction chamber at the pressure to deposit the material on the substrate.

10. A flat display provided with an electron emission element as the electron source comprising an electron emission element having an electron emission part formed on a substrate with interposition of an interference layer consisting of a conductive film or resistive film comprising a crystalline thin film of an electron emissive material formed by means of a cold cathode forming process comprising a step for providing a target material and a substrate in a reaction chamber, a step for controlling the pressure (P) of an ambient gas introduced into the reaction chamber and the distance (D) between the substrate and the target material so that the size of a high temperature high pressure area formed near the target material by irradiating a beam light onto the target material is optimal, and a step for exciting and ejecting the material contained in the target material by irradiating the beam light onto the target material with introducing the ambient gas into the reaction chamber at the pressure to deposit the material on the substrate.

11. An electron emission element provided with a transparent substrate and a cold cathode having a crystalline thin film consisting of an electron emissive material formed

by means of a cold cathode forming process comprising a step for providing a target material and a substrate in a reaction chamber, a step for controlling the pressure (P) of an ambient gas introduced into the reaction chamber and the distance (D) between the substrate and the target material so that the size of a high temperature high pressure area formed near the target material by irradiating a beam light onto the target material is optimal, and a step for exciting and ejecting the material contained in the target material by irradiating the beam light onto the target material with introducing the ambient gas into the reaction chamber at the pressure to deposit the material on the substrate.

12. An electron emission element provided with a transparent substrate and a crystalline thin film of an electron emissive material formed by means of a cold cathode forming process comprising a step for providing a target material and a substrate in a reaction chamber, a step for controlling the pressure (P) of an ambient gas introduced into the reaction chamber and the distance (D) between the substrate and the target material so that the size of a high temperature high pressure area formed near the target material by irradiating a beam light onto the target material is optimal, and a step for exciting and ejecting the material contained in the target material by irradiating the beam light

onto the target material with introducing the ambient gas into the reaction chamber at the pressure to deposit the material on the substrate, wherein the electron emission element is formed on the substrate with interposition of an interference layer consisting of conductive film or resistive film.

13. The electron emission element as claimed in claim 11, wherein the crystalline thin film that constitutes the cold cathode consists of transparent conducting material selected from a group including In_2O_3, SnO_2, ITO, ZnO, TiO_2, WO_3, and $CuAlO_2$.

14. The electron emission element as claimed in claim 12, wherein the crystalline thin film that constitutes the cold cathode consists of transparent conducting material selected from a group including In_2O_3, SnO_2, ITO, ZnO, TiO_2, WO_3, and $CuAlO_2$.

15. A transparent type flat display having an electron emission element as the electron source provided with a transparent substrate and a cold cathode having a crystalline thin film consisting of an electron emissive material formed by means of a cold cathode forming process comprising a step for providing a target material and a substrate in a reaction chamber, a step for controlling the pressure (P) of an ambient gas introduced into the reaction chamber and the distance (D)

between the substrate and the target material so that the size of a high temperature high pressure area formed near the target material by irradiating a beam light onto the target material is optimal, and a step for exciting and ejecting the material contained in the target material by irradiating the beam light onto the target material with introducing the ambient gas into the reaction chamber at the pressure to deposit the material on the substrate.

16. A transparent type flat display having an electron emission element as the electron source provided with a transparent substrate and a crystalline thin film of an electron emissive material formed by means of a cold cathode forming process comprising a step for providing a target material and a substrate in a reaction chamber, a step for controlling the pressure (P) of an ambient gas introduced into the reaction chamber and the distance (D) between the substrate and the target material so that the size of a high temperature high pressure area formed near the target material by irradiating a beam light onto the target material is optimal, and a step for exciting and ejecting the material contained in the target material by irradiating the beam light onto the target material with introducing the ambient gas into the reaction chamber at the pressure to deposit the material on the substrate, wherein the electron emission element is

formed on the substrate with interposition of an interference layer consisting of conductive film or resistive film.